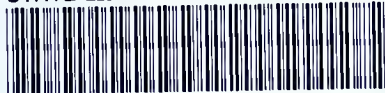


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1937

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF INTERNAL AFFAIRS

TOPOGRAPHIC AND GEOLOGIC SURVEY
HARRISBURG

January, 1937

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SERVICE
and
LIST OF PUBLICATIONS

The Topographic and Geologic Survey's job is to map Pennsylvania and to get and give information on its mineral resources, their occurrence, character, possible use and value, and on the surface features, geology, soils, and ground water of the State.

Inquiries on these subjects are answered promptly and as fully as the information at hand warrants, either by letter or by reference to its own published reports or to other sources of information. The Survey will gladly identify and appraise mineral or rock specimens but does not make assays or analyses for the public. Rarely are these necessary.

Publications on the geology and mineral resources of Pennsylvania are listed on the following pages. They may be consulted in many public libraries, or purchased from the sources indicated.

Unless otherwise stated the reports of this Survey listed can be obtained *only* at the prices given and only from

Division of Documents
Department of Property & Supplies
10th and Market Streets
Harrisburg, Pa.

Remittance should be made in cash, or by money order or check, payable to Commonwealth of Pennsylvania. Stamps are not accepted.

DO NOT SEND MONEY TO THE SURVEY

Publications checked in red may be of interest to you. Those out of print are on file in many public libraries throughout the State. Names of secondhand book dealers will be furnished on request.

Knowledge is power. It pays to know. Ask us.

Geo. H. Ashley

State Geologist.

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LIST OF PUBLICATIONS

The publications fall mostly into five series, designated by letters. A. Atlas, topographic, geologic, and mineral resource maps and description, by quadrangles. C. County Reports. G. General Geology. M. Mineral Resources. W. Ground Water Resources.

A SERIES—TOPOGRAPHIC AND GEOLOGIC ATLAS

(See map on last page)

- A 5. New Castle Quadrangle, by Frank W. DeWolf. 1929. 238 pp., 18 pls. including 1 topographic and 4 geologic maps, 17 figs. \$1.00.
- A 27. Pittsburgh Quadrangle, by Meredith E. Johnson. 1928. 236 pp., 33 pls. including 1 topographic and 3 geologic maps, 28 figs. \$1.00.
- A 36. Freeport Quadrangle, by H. H. Hughes. 1933. 272 pp., 10 pls., 72 figs. including 1 topographic and 2 geologic maps. \$1.75.
- A 37. Greensburg Quadrangle, by Meredith E. Johnson. 1926. 162 pp., 13 pls., 25 figs. including 1 topographic and 3 geologic maps. Out of print.
- A 65. Punxsutawney Quadrangle, by Geo. H. Ashley. 1926. 145 pp., 6 pls. including 1 topographic and 3 geologic maps, 26 figs. Out of print.
- A 168. Lancaster Quadrangle, by Anna I. Jonas and George W. Stose. 1930. 103 pp., 23 pls., including 1 topographic and 1 geologic map, 10 figs. \$1.00.
- A 178. New Holland Quadrangle, by Anna I. Jonas and George W. Stose. 1926. 40 pp., 7 pls. including 1 topographic and 1 geologic map. Out of print.
- A 206. Allentown Quadrangle, by B. L. Miller. 1926. 195 pp., 15 pls. including 1 topographic and 1 geologic map, 2 figs. Out of print.

C SERIES—COUNTY REPORTS

- C 1. Adams County
 - Part II. Mineral Resources, by George W. Stose. 1925. 64 pp., 11 pls., including 1 colored map, 1 fig. Out of print.
 - Part III. Soil Survey, by A. L. Patrick and H. H. Bennett. 1924. 44 pp., 1 colored map. Out of print.
- C 1. Geology and mineral resources of Adams County, by George W. Stose. 1932. 153 pp., 26 pls., including a topographic and a colored geologic map, 11 figs. \$1.00.
- C 30. Geology and mineral resources of Greene County, by Ralph W. Stone. 1932. 175 pp., 3 pls., including a topographic and a geologic map, 56 figs. \$1.00.

G. SERIES—GENERAL GEOLOGY

- G 1. A syllabus of Pennsylvania geology and mineral resources, by George H. Ashley. 1931. 160 pp., 2 plates, including a small colored geologic map, 118 figs. 30 cents. A story of Pennsylvania's rocks, minerals and mineral industry, and the development of the surface features, written expressly for people who have not studied the subject.
- G 2. Meteorites found in Pennsylvania, by Ralph W. Stone. 1932. 28 pp., 14 figs. 10 cents. A compilation of all publications on five meteorites.
- G 3. Pennsylvania Caves, by Ralph W. Stone. 1932. 143 pp., 68 figs. 25 cents. Describes 14 caves open to the public, and about 70 undeveloped caves.
- G 4. Devonian Faunas in Pennsylvania, by Bradford Willard. 1932. 43 pp. 15 cents. Lists of certain Middle and Upper Devonian faunas, citing localities where collected. Of interest only to students of fossils.
- G 5. Correlation of the Ordovician Limestone at Salona, Clinton County, by Lawrence Whitcomb. 1932. 16 pp., 1 pl. 15 cents. A discussion of the lithology and correlation of Trenton limestone exposed at Salona.
- G 6. Scenery of Pennsylvania, by George H. Ashley. 1933. Its origin and development, based on recent studies of physiographic and glacial history, as interpreted by Geo. H. Ashley. 91 pp., 1 pl., 90 figs. 35 cents.
- G 7. Glacial deposits outside the Wisconsin terminal moraine in Pennsylvania, by Frank Leverett. 1934. 140 pp., 1 pl., 38 figs. 50 cents.

M SERIES—MINERAL RESOURCES

- M 1. Oil and Gas Fields of Pennsylvania, Vol. 1, Introduction, by George H. Ashley and J. French Robinson, 1922, 79 pp., 4 pls., 9 figs., 1 color map. A condensed, introductory description of the origin, mode of occurrence, and conditions of development of oil and gas, with a brief description of each of the oil and gas fields of the State; also a small scale reconnaissance map of the oil and gas fields. Out of print.
- M 2. Oil Resources in Coals and Carbonaceous Shales of Pennsylvania, by Chas. R. Fettke, 1923, 119 pp., 6 pls., 16 figs. Describes the petroleum situation, explaining methods of distilling coal and shale, and gives results of tests on 122 samples of coal and shale. Out of print.
- M 3. Silica Refractories of Pennsylvania, by E. S. Moore and T. G. Taylor, 1924, 100 pp., 16 pls., 10 figs. Describes the character, distribution, and quarrying of ganister and mica schist, and the properties, manufacture, and uses of silica brick. Out of print.
- M 4. Bituminous Coal Losses and Mining Methods in Pennsylvania, by James D. Sisler, 1924, 216 pp., 1 pl., 29 figs. Describes the distribution, thickness, character, and reserves of bituminous coal by districts, and indicates the source of loss and waste at the mines. Out of print.
- M 5. Lead and Zinc Ores of Pennsylvania, by B. L. Miller, 1924, 91 pp., 5 pls., 7 figs. A description of the distribution, geologic occurrence, and origin of the ores, and a history of mining operations. Out of print.
- M 6. Bituminous Coal Fields of Pennsylvania.
 - Part I. General Information on Coal, by George H. Ashley, 1928, 241 pp., 17 pls., 32 figs. 50 cents.
 - II. Detailed Description of Coal Fields, by J. D. Sisler, 1932, 511 pp., 14 pls., including 5 color maps, 152 figs. A report giving details of the bituminous coal beds. The description is by counties. 50 cents.
 - III. Bituminous Coal Resources, by John F. Reese and James D. Sisler, 1928, 153 pp., 4 pls. 25 cents.
 - IV. Analyses of Bituminous Coal, 1925, 268 pp., 1 pl. This report by the U. S. Bureau of Mines gives several hundred measurements and analyses of bituminous coal mined in Pennsylvania. 50 cents.
- M 7. Limestones of Pennsylvania, by B. L. Miller, 1925, 368 pp., 15 pls., includes 1 color map, 7 figs. Describes the character, origin, and uses of limestone and the geographic and geologic distribution of the principal deposits. The description of the limestone of each geologic age is arranged by counties. Out of print. (see M 20)
- M 8. Anthracite Losses and Reserves in Pennsylvania, by Dever C. Ashmead, 1926, 71 pp., 1 pl., 13 figs. This report gives the thickness and acreage of each bed in the anthracite field, the percentage of coal recovered in mining, explains how and why some anthracite is lost, and gives an estimate of the quantity of anthracite remaining in each bed, and in each of the four fields. Out of print.
- M 9. Slate in Northampton County, by C. H. Behre, Jr. 1927, 312 pp., 36 plates, 49 figures, 2 color maps. Describes the slate quarries in the Bangor, Wind Gap, Portland, Belfast, Chapman, Seemsville, Point Phillip, and Slatefield districts, with special reference to the geologic structure. Out of print. (see M 16)
- M 10. Fire Clays of Pennsylvania, by J. B. Shaw, 1928, 69 pp., 6 figs. 25 cents.
- M 11. Molding Sands of Pennsylvania, by R. W. Stone and American Foundrymen's Association, 1928, 94 pp., 21 pls., 10 figs. 25 cents.
- M 12. Anthracite Culm and Silt, by James D. Sisler, Thomas Frazer and Dever C. Ashmead, 1928, 259 pp., 34 pls., 21 figs. 50 cents.
- M 13. Feldspar in Pennsylvania, by R. W. Stone and H. Herbert Hughes, 1931, 60 pp., 20 pls., 6 figs. Out of print.
- M 14. Magnetite Deposits of French Creek, Pennsylvania, by Laurence L. Smith, 1931, 52 pp., 5 pls., 5 figs. Describes the French Creek magnetite mine at Saint Peters, Chester County. Out of print.
- M 15. Building Stones of Pennsylvania, by Ralph W. Stone, 1932, 316 pp., 4 pls., 164 figs. \$1.25. This report calls attention to the different kinds of building stone available and illustrates their uses.

- M 16. Slate in Pennsylvania, by Charles H. Behre, Jr. 1933. 400 pp., 5 colored geologic maps, 65 other pls., 89 figs. \$2.75. The fullest description and discussion of the subject ever published.
- M 17. Clay and Shale Resources of Southwestern Pennsylvania, by Henry Leighton. 1933. 190 pp., 1 colored geologic map, 16 figs. 75 cents.
- M 18. Undeveloped Mineral Resources of Pennsylvania. A. Introduction, by George H. Ashley. 1933. 15 pp. Obtained free from the State Geologist.
- M 19. Contributions to Oil and Gas Geology of Western Pennsylvania, by J. D. Sisler, G. H. Ashley, F. T. Moyer and W. O. Hickok, 4th. 1933. 94 pp., 22 pls., 1 fig. Out of print.
- M 20. Limestones of Pennsylvania, by B. L. Miller. 1934. 729 pp., 41 pls., 34 figs. \$2.00. The primary purpose of this report is to furnish information concerning the limestones of the State to those persons or firms that are interested in their utilization.

W SERIES—GROUND WATER RESOURCES

- W 1. Ground Water in Southwestern Pennsylvania, by Arthur M. Piper. 1933. 410 pp., 1 colored geologic map, 40 figs. \$1.50. A detailed description of the occurrence and character of ground water in Allegheny, Butler, Fayette, Greene, Washington, and Westmoreland counties.
- W 2. Ground Water in Southeastern Pennsylvania, by George M. Hall. 1934. 255 pp., 1 colored geologic map, 7 pls., 7 figs. \$1.25. A detailed description of the occurrence and character of ground water in Adams, Berks, Bucks, Chester, Cumberland, Dauphin, Delaware, Franklin, Lancaster, Lebanon, Lehigh, Montgomery, Northampton, Philadelphia and York counties.
- W 3. Ground Water in Northwestern Pennsylvania, by R. M. Leggette. 1936. 215 pp., 1 colored geologic map, 8 other pls., 15 figs. \$1.50. A detailed description of the occurrence and character of ground water in Armstrong, Beaver, Clarion, Crawford, Erie, Forest, Indiana, Jefferson, Lawrence, Mercer, Venango and Warren counties.
- W 4. Ground Water in Northeastern Pennsylvania, by Stanley W. Lohman. 1937. 300 pp., 1 colored geologic map, 6 other pls., 18 figs. \$1.50. A detailed description of the occurrence and character of ground water in Carbon, Columbia, northern Dauphin, Lackawanna, Luzerne, Monroe, Montour, Northumberland, Pike, Schuylkill, Susquehanna, Wayne and Wyoming counties.

PROGRESS REPORTS

Copies of these papers may be obtained free of cost from the State Geologist, Harrisburg, so long as they remain in stock.

Missing numbers represent bulletins which have been discontinued because the subject is covered by printed bulletins issued later.

28. Magnesite in Pennsylvania, by R. W. Stone, 3 pages. ~~Out of print~~

48. Pyrite from Bituminous Coal Mines in Pennsylvania, by Henry Leighton, 19 pages, 3 plates, 1 map. ~~Out of print~~

56. Oil Fields rejuvenated, by Robert B. Bossler, 14 pages. ~~Out of print~~

59. Bog Iron Ore, by J. Ross Corbin, 5 pages.

61. Magnetite in Pennsylvania, by J. Ross Corbin, 6 pp., 1 map, 1 chart. ~~Out of print~~

63. Brown Iron Ores in Pennsylvania, by J. Ross Corbin, 7 pages, 1 map, 2 charts.

76. Calcareous marl in Pennsylvania south of the Terminal Moraine, by J. B. R. Dickey, 10 pages, 3 figs. Out of print.

77. Gold in Pennsylvania, J. Ross Corbin, 13 pages. Out of print.

83. The Living Earth, by Geo. H. Ashley, 4 pages. ~~Out of print~~

86. The Age and Origin of the Earth, by Geo. H. Ashley, 8 pages. ~~Out of print~~

89. A Practical Classification of Coals, by Geo. H. Ashley, 16 pages. ~~Out of print~~

94. High Spots in Pennsylvania, by Geo. H. Ashley. ~~Out of print~~

95. Mineral Resources of the Lower Allegheny-Beaver River District, by Geo. H. Ashley, 6 pages, 1928.

96. Sand and Gravel in the Scranton Region, Pennsylvania, by Freeman Ward, 15 pp., 1928.

97. Mineral Resources of Pennsylvania, by Geo. H. Ashley, 9 pages, 1928.
99. Sand and Gravel in the Reading Region, Pennsylvania, by Freeman Ward, 13 pages, 1929. Out of print.
100. Sand and Gravel in the Altoona Region, Pennsylvania, by Freeman Ward, 15 pages, 1930. Out of print.
101. The Topographic and Geologic Survey, a brief summary of its work since 1919, by Geo. H. Ashley, 6 pages, 1930.
- 102B. Physical characteristics of the Oriskany sandstone and Subsurface studies in the Tioga gas field, Pennsylvania, by Charles R. Fettke. Stratigraphy of the Tioga Region, by Bradford Willard, 14 pp., Dec. 1931. 6 cents.
103. River Coals of Eastern Pennsylvania, by John M. Hills, 33 pp., 1931.
104. Iron Ores, present and future, by W. O. Hickok, 4th, 6 pp., 1932. Out of print.
106. Gas and Oil in Potter County, Pennsylvania, by S. H. Cathcart. 31 pp., 3 figs. 1934.
107. Gas in Tioga County, Pennsylvania, by S. H. Cathcart and T. H. Myers. 42 pp., 5 figs., 1934.
108. Geologic Structure in the Plateaus Region of Northern Pennsylvania and its relation to the occurrence of gas in the Oriskany sand, by S. H. Cathcart. 24 pp., 2 figs. 1934.
109. Possibility of Finding Gas in Cameron County, Pennsylvania, by S. H. Cathcart. 16 pp., 3 figs. 1934.
110. Possible Occurrence of Gas in the Oriskany sand of Elk County, Pennsylvania, by S. H. Cathcart. 21 pp., 3 figs., 1934.
111. Possibility of Finding Gas in the Oriskany sand of McKean County, Pennsylvania, by S. H. Cathcart. 13 pp., 3 figs., 1934. Out of print.
112. White Clays of Pennsylvania, by Henry Leighton. 19 pp., 12 figs., 1934.
113. Pennsylvania Geology Summarized, by Bradford Willard, 13 pp., 6 figs., 1935.
114. Subsurface Stratigraphy of Northwestern Pennsylvania and a Resume of Gas and Oil Possibilities of Deeper Sands, by Charles R. Fettke. 23 pp., 4 figs., 1935.
115. Structure and Stratigraphy of Fayette County (Preliminary report) by Forrest T. Moyer. . . pp., 1 map, 1937.

MISCELLANEOUS PAPERS

1. The Story of the Survey, by Geo. H. Ashley, 1920, 20 pp. Out of print.
2. The Work of the Survey, by Geo. H. Ashley, 1923, 18 pp. Out of print.
3. The Pennsylvania Geological Survey. Administrative report, by Geo. H. Ashley. 1931. 38 pp., 1 index map. ~~Out of print~~

MAPS

Geologic map of Pennsylvania. 1932. 40 by 62 inches (scale 1 inch equals 6 miles). In 17 colors and 70 patterns. \$1.50.

Map of Bituminous Coal Fields of Pennsylvania. 1929. 35 by 57 inches (scale 1 inch equals 6 miles). 50 cents.

Oil and Gas map of Western Pennsylvania. 1932. 24 by 30 inches (scale 1 inch equals 6 miles), with pipe line maps on back. 25 cents.

Plain base map of Pennsylvania. 1927. 40 by 62 inches (scale 1 inch equals 6 miles). This map shows county and township lines, and principal towns in black and streams in blue. Contains no topographic or geologic data. ~~Out of print.~~ *25¢*

PUBLICATIONS OF PREVIOUS GEOLOGIC SURVEYS

The present Survey has been preceded by the First Geological Survey of Pennsylvania, Second Geological Survey of Pennsylvania, and Topographic and Geologic Survey Commission of Pennsylvania whose publications are all out of print. They can be consulted in the libraries of the larger cities or purchased through secondhand book dealers.

If the information being sought is given in one of these publications the book reference is given here:

PUBLICATIONS OF THE UNITED STATES GEOLOGICAL SURVEY

The United States Geological Survey has published many reports on Pennsylvania. Most of them were prepared in cooperation with the State. Of these a large share are no longer obtainable from any official source, but can be consulted in the principal libraries or possibly obtained from secondhand book dealers. The few folios of the Geologic Atlas of the United States still available can be obtained only from The Director, U. S. Geological Survey, Washington, D. C. at the prices given (stamps not accepted). Several of the economic bulletins can be obtained from the Superintendent of Documents, Washington, D. C., at the prices quoted.

FOLIOS

82. Masontown-Uniontown, by M. R. Campbell. 1902. Out of print.
92. Gaines, by M. L. Fuller. 1903. Out of print.
93. Elkland-Tioga, by M. L. Fuller and W. C. Alden. 1903. Out of print.
94. Brownsville-Connellsville, by M. R. Campbell. 1903. Out of print.
102. Indiana, by G. B. Richardson. 1904. Out of print.
110. Latrobe, by M. R. Campbell. 1904. Out of print.
115. Kittanning, by Charles Butts. 1904. Out of print.
121. Waynesburg, by R. W. Stone. 1905. Out of print.
123. Elders Ridge, by R. W. Stone. 1905. Out of print.
125. Rural Valley, by Charles Butts. 1905. Out of print.
133. Ebensburg, by Charles Butts. 1905. Out of print.
134. Beaver, by L. H. Woolsey. 1905. Out of print.
144. Amity, by F. G. Clapp. 1907. Out of print.
146. Rogersville, by F. G. Clapp. 1907. Out of print.
160. Accident-Grantsville, by G. C. Martin. 1909. Out of print.
162. Philadelphia, by F. Bascom, Clark et al. 1909. Out of print.
167. Trenton, N. J.-Pa., by F. Bascom, Darton, Kummel et al. 1909. Out of print.
170. Mercersburg-Chambersburg, by George W. Stose. 1909. Out of print.
172. Warren, by Charles Butts. 1910. Out of print.
174. Johnstown, by W. C. Phalen. 1910. Out of print.
176. Sewickley, by M. J. Munn. 1911. Out of print.
177. Burgettstown-Carnegie, by E. W. Shaw and M. J. Munn. 1911. Out of print.
178. Foxburg-Clarion, by E. W. Shaw, E. F. Lines and M. J. Munn. 1911. Out of print.
179. Pawpaw-Hancock, by G. W. Stose and C. K. Swartz. 1911. Out of print.
180. Claysville, by M. J. Munn. 1911. Out of print.
189. Barnesboro-Patton, by M. R. Campbell, F. G. Clapp and Charles Butts. 1913. 25 cents.
223. Coatesville-West Chester, by F. Bascom and G. W. Stose. 1932. 50 cents.
224. Somerset-Windber, by G. B. Richardson. 1934. 50 cents.
225. Fairfield-Gettysburg, by G. W. Stose and F. Bascom. 1929. 50 cents.
- Hollidaysburg-Huntingdon, by Charles Butts.

BULLETINS

3. On the fossil faunas of the Upper Devonian, by H. S. Williams. 1884. 36 pp. Out of print.
58. The Glacial boundary in Western Pennsylvania, Ohio, Kentucky, Indiana and Illinois, by G. F. Wright. 1890. 112 pp., 8 pls. Out of print.
65. Stratigraphy of the bituminous coal field of Pennsylvania, Ohio, and West Virginia, by I. C. White. 1891. 212 pp., 11 pls. Out of print.
120. The Devonian system of eastern Pennsylvania and New York, by C. S. Prosser. 1894. 81 pp., 2 pls. Out of print.
134. The Cambrian rocks of Pennsylvania, by C. D. Walcott. 1896. 43 pp., 15 pls. Out of print.

136. The ancient volcanic rocks of South Mountain, Pennsylvania, by F. Bascom. 1896. 124 pp., 28 pls. Out of print.
249. Limestones of southwestern Pennsylvania, by F. G. Clapp. 1905, 52 pp. Out of print.
256. Mineral resources of the Elders Ridge quadrangle, Pennsylvania, by R. W. Stone. 1905, 86 pp. 15 cents.
279. Economic geology of the Kittanning and Rural Valley quadrangles, Pennsylvania, by Charles Butts. 1906, 198 pp. 50 cents.
286. Economic geology of the Beaver quadrangle, Pennsylvania, by L. H. Woolsey. 1906, 132 pp. Out of print.
288. Results of spirit leveling in Pennsylvania for the years 1899 to 1905, inclusive, by S. S. Gannett and D. H. Baldwin. 1906. 62 pp. Out of print.
300. Economic geology of the Amity quadrangle, Pennsylvania, by F. G. Clapp. 1907, 145 pp. 30 cents.
304. Oil and gas fields of Greene County, Pennsylvania, R. W. Stone and F. G. Clapp. 1907, 110 pp. Out of print.
318. Geology of the oil and gas fields in Steubenville, Burgettstown and Claysville quadrangles, Ohio, West Virginia and Pennsylvania, W. T. Griswold and M. J. Munn. 1907, 196 pp. Out of print.
359. Magnetite deposits of the Cornwall type in Pennsylvania, by A. C. Spencer. 1908. 102 pp., 2 pls. Out of print.
383. Notes on explosive mine gases and dusts, with special reference to explosions in the Monogah, Darr and Naomi mines, by R. T. Chamberlin. 1909. 67 pp. 10 cents.
447. Mineral resources of Johnstown, Pennsylvania and vicinity, by W. C. Phalen and Lawrence Martin. 1911. 142 pp., 7 pls. 25 cents.
454. Coal, oil and gas of the Foxburg quadrangle, Pennsylvania, by E. W. Shaw and M. J. Munn. 1911. 85 pp., 10 pls. 30 cents.
455. Copper deposits of the Appalachian States, by W. H. Weed. 1911. 166 pp., 6 pls. Out of print.
456. Oil and gas fields of the Carnegie quadrangle, Pennsylvania, by M. J. Munn. 1911. 99 pp., 5 pls. 20 cents.
465. The State Geological Surveys of the United States, compiled under the direction of C. W. Hayes. 1911. 177 pp. Out of print.
508. The Onondaga fauna of the Allegheny region, by E. M. Kindle. 1912. 144 pp., 13 pls. 45 cents.
515. Results of spirit leveling in Pennsylvania, 1899 to 1911, inclusive, R. B. Marshall, chief geographer. 1912. 163 pp., 1 pl. 15 cents.
799. Geology of the McCalls Ferry-Quarryville district, Pennsylvania, by E. B. Knopf and A. I. Jonas. 1929, 156 pp., 8 pls. 35 cents.
828. Geology and mineral resources of the Quakertown-Doylestown district, Pennsylvania and New Jersey, by Bascom, Wherry, Stose, and Jonas. 1931. 62 pp., 4 pls., 3 figs. 40 cents.
829. Geology and coal, oil, and gas resources of the New Kensington quadrangle, Pennsylvania, by G. B. Richardson. 1932. 102 pp., 9 pls., 6 figs. 40 cents.
840. Geology and mineral resources of the Middletown quadrangle, Pennsylvania, by George W. Stose and Anna I. Jonas. 1933. 86 pp., 15 pls., 16 figs. 40 cents.
855. Geology and mineral resources of the Bellefonte quadrangle, Pennsylvania, by Charles Butts and Elwood S. Moore. 1936. 111 pp., 12 pls., 2 figs. 50 cents.

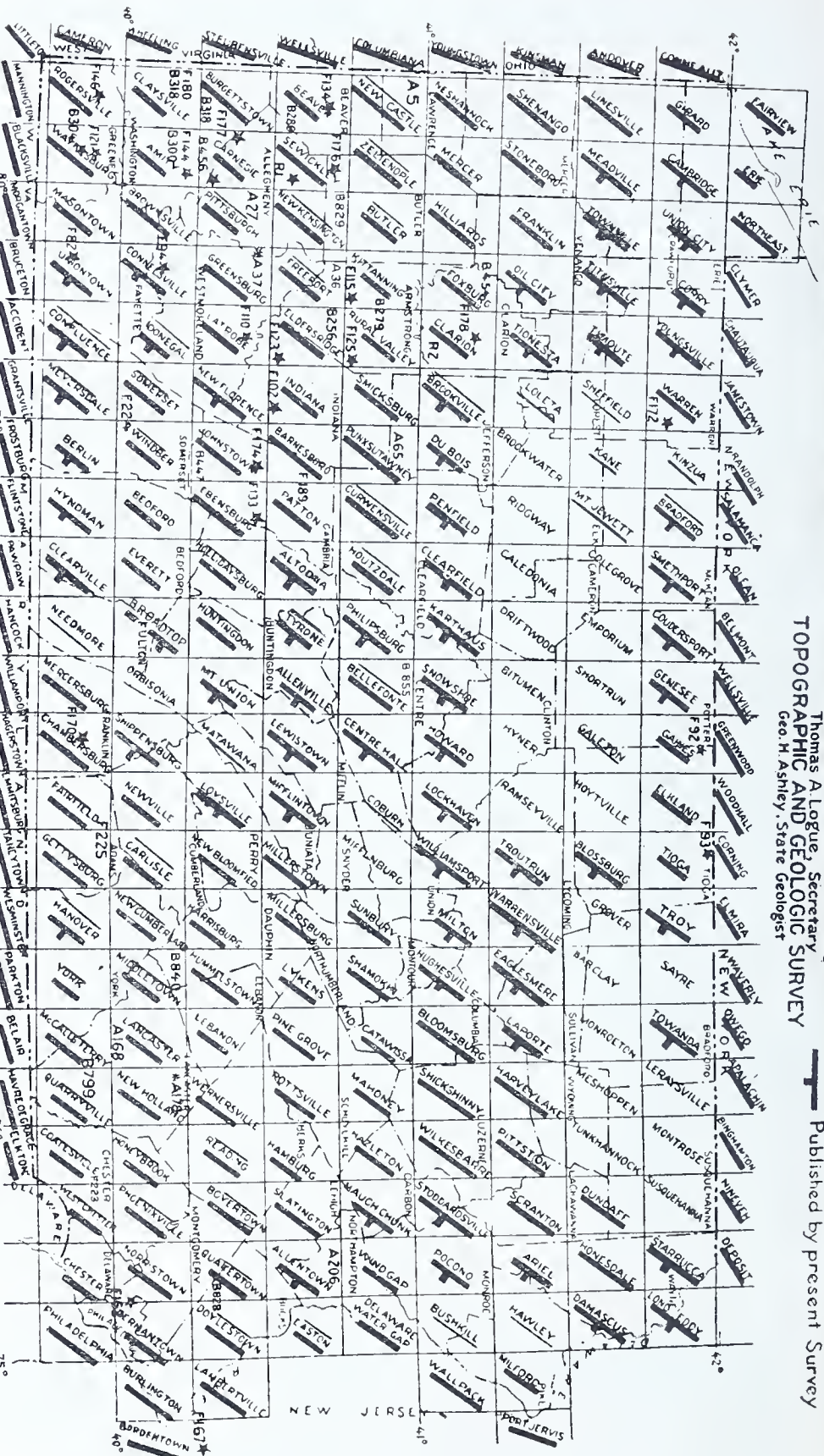
For other publications on Pennsylvania Geology, see G-1, Syllabus.

TOPOGRAPHIC MAPS

Topographic maps can be obtained only from The Director, U. S. Geological Survey, Washington, D.C., for 10 cents each (stamps not accepted), or from your local stationer. Only the quadrangles heavily underscored are available. Those with light underscore have been surveyed but are not yet engraved. A blue check indicates being engraved but not ready for distribution.

DEPARTMENT OF INTERNAL AFFAIRS
 Thomas A. Logue, Secretary
TOPOGRAPHIC AND GEOLOGIC SURVEY
 Geo. H. Ashley, State Geologist

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 Under name Engineering map available 10 cents each
 Over name, Geologic and work completed or in progress

A Atlas by Pennsylvania Geologic Survey
 B Bulletin by number U.S. Geological Survey
 F Folio by number U.S. Geological Survey
 P Reports by number, Pennsylvania Geologic Survey

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